REMARKS

This paper responds to the Office Action mailed 21 May 2004.

This response addresses initially the rejections against the independent claims 1,4,9 and 14. Claim 18 is dealt with further below.

The main reference cited against claims 1, 4, 9 and 14 is again "Ransford" (US 6,532,087). The Examiner has indicated that Ransford fails to disclose the channel error ratio being obtained from a combination of measured error ratios, and independent claims 1 and 4 are rejected under 35 USC §103(a) as being unpatentable over Ransford in view of Ono (US 5,896,392). Independent claims 9 and 14 are rejected under 35 USC §103(a) as being unpatentable over Ransford in view of Ono and further in view of Fujita (US 6,570,685).

The previous amendment to the claims was intended to clarify that the measurements which are taken on the channels in turn are not full channel error ratio measurements, but are merely the individual error measurements for specific decision threshold levels. There was no suggestion that the idea of combining error ratio measurements for different decision thresholds to derive a channel error ratio was not known. Indeed, this is the technique described in detail at page 3 lines 3-27 of the instant application.

In fact, Ransford discloses the same technique, in which a channel error ratio is obtained from bit error rate measurements at a plurality of decision thresholds. This is discussed in detail in Ransford at column 2 lines 9-11 and column 3 lines 2-19. It is disclosed in these passages that "several measurements are taken of high BER values and plotted ... on a logarithmic scale", with "plotting one line for the threshold for 1's ... and another line for 0's". The point at which the lines intersect is used to determine the channel error ratio.

The independent claims are in fact distinguished over Ransford in that a measurement circuit is required to be operable to "cycle through all channels, taking an error ratio measurement for each channel in sequence with a

predetermined decision threshold level". The independent claims are thus clearly directed to the approach explained most clearly with reference to Figure 4 of the instant application.

In Figure 4, the measurements are taken in numerical order from 40 to 55 for the four channels A to D. Thus, the measurements cycle through the channels.

As previously argued, Ransford discloses a method of performing a full Q-factor measurement for one channel before moving to the next channel. The teaching of Ransford would be to take the measurements shown in Figure 4 in the order 40,44,48,52 – 41,45,49,53 – 42,46,50,54 – 43,47,51,55.

Thus, Ransford operates in the manner explained at page 3 lines 19-27 of the instant application.

Ono is another example of disclosure of the basic technique described in detail at page 3 lines 3-27 of the instant application. There is again no disclosure or suggestion in Ono of taking error ratio measurements for multiple channels in turn, so as to build up the information for each channel in a piecewise manner, as explained above. There is no mention of multiple channel measurements at all in Ono.

Ransford and Ono thus fail to disclose, alone or in combination, the measurement of error ratios for specific decision thresholds across multiple channels in turn, so that the information required for the channel error ratio is built up for the multiple channels in parallel.

The failure of Ransford and Ono to disclose or suggest the combination of features in claims 1 and 4 renders the rejections of the other independent claims 9 and 14 moot, as these rejections are all fundamentally based on the same rejection over the combination of Ransford and Ono.

It is therefore respectfully submitted that the clarification given above addresses the rejections raised against independent claims 1, 4, 9 and 14. Neither Fujita

nor Shimokawa discloses the cycling of error ratio measurements for individual decision threshold levels between different channels.

It is therefore submitted that the independent claims 1, 4, 9 and 14 are new and not obvious in view of the prior art.

A double patenting rejection is raised against claim 18. In view of the other rejections raised, the Examiner is respectfully requested to continue this rejection until the conclusion of the prosecution of this application.

Independent claim 18 is also rejected under 35 USC §103(a) as being unpatentable over Ransford in view of Ono in view of Fujita and further in view of Shimokawa (US 6,445,471).

Claim 18 requires optical amplifiers between the nodes to be provided with optical spectrum analysis apparatus. As described at the top of page 10, the spectrum analysis in the amplifier sites can obtain channel power and inter-channel noise information, whereas the Q-factor measurement gives optical eye closure information. Thus, the network can detect a large number of types of fault, as mentioned at page 5 lines 19-22.

In Shimokawa, Figures 3, 4. 6, 7 and 12 (relied upon by the Examiner) show receiver or transmitter architectures, and there is no disclosure of optical amplifiers between the nodes to be provided with optical spectrum analysis apparatus.

It is thus submitted that claim 18 is new and inventive over the prior art in its original form.

Detailed arguments are not presented in respect of the dependent claims. However, the arguments of the Examiner should not be taken to be accepted.

In view of the arguments above, it is submitted that this application is in order for allowance. Such action is therefore solicited.

Respectfully submitted,

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William M. Lee, Jr.
Registration No. 26,935

Barnes & Thornburg LLP
PO Box 2786
Chicago IL 60690-2786
(312) 357-1313 Telephone
(312) 759-5646 Facsimile
(312) 214-4811 Direct